

Q1. WACP to print the size and range of various data types.

```
#include <stdio.h>
#include <math.h>

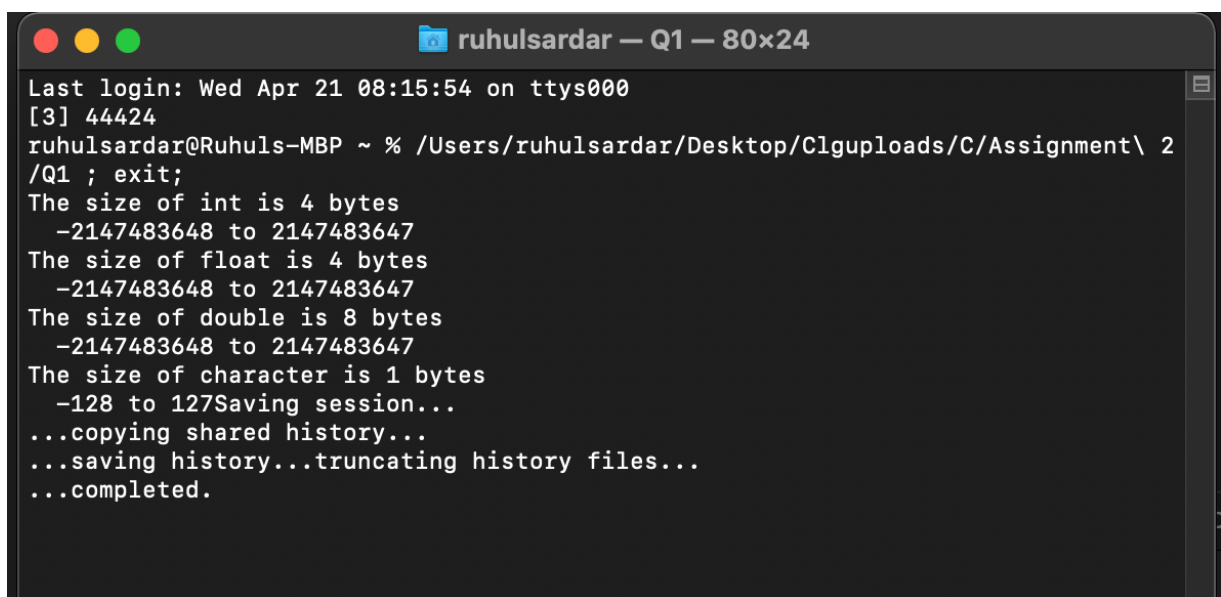
int range_of(int r){
    int min, max, temp;
    r*=8;
    temp = pow(2,r-1);
    min = -temp;
    max = temp - 1;
    printf("\n %d to %d", min, max);

    return 0;
}

int main(){
    int a = sizeof(int), b = sizeof(float), c = sizeof(double), d = sizeof(char);
    printf ("The size of int is %d bytes", a);
    range_of(a);
    printf ("\nThe size of float is %d bytes", b);
    range_of(b);
    printf ("\nThe size of double is %d bytes", c);
    range_of(c);
    printf ("\nThe size of character is %d bytes", d);
    range_of(d);

    return 0;
}
```

Output:

A screenshot of a macOS terminal window titled "ruhulsardar — Q1 — 80x24". The terminal shows the execution of a C program. The output displays the size and range for various data types: int (4 bytes, -2147483648 to 2147483647), float (4 bytes, -2147483648 to 2147483647), double (8 bytes, -2147483648 to 2147483647), and character (1 byte, -128 to 127). The terminal also shows system messages like "Last login: Wed Apr 21 08:15:54 on ttys000", a prompt "[3] 44424", and session management messages at the end.

```
ruhulsardar — Q1 — 80x24
Last login: Wed Apr 21 08:15:54 on ttys000
[3] 44424
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q1 ; exit;
The size of int is 4 bytes
-2147483648 to 2147483647
The size of float is 4 bytes
-2147483648 to 2147483647
The size of double is 8 bytes
-2147483648 to 2147483647
The size of character is 1 bytes
-128 to 127Saving session...
...copying shared history...
...saving history...truncating history files...
...completed.
```

Q2. WACP to calculate sum of digits of a five digit number without using loop construct.

```
#include<stdio.h>

int main(){
    int num, sum = 0, temp;
    printf("Enter a five digit number: ");
    scanf("%d", &num);

    temp = num % 10;
    sum += temp;
    num = num / 10;

    temp = num % 10;
    sum += temp;
    num = num / 10;

    temp = num % 10;
    sum += temp;
    num = num / 10;

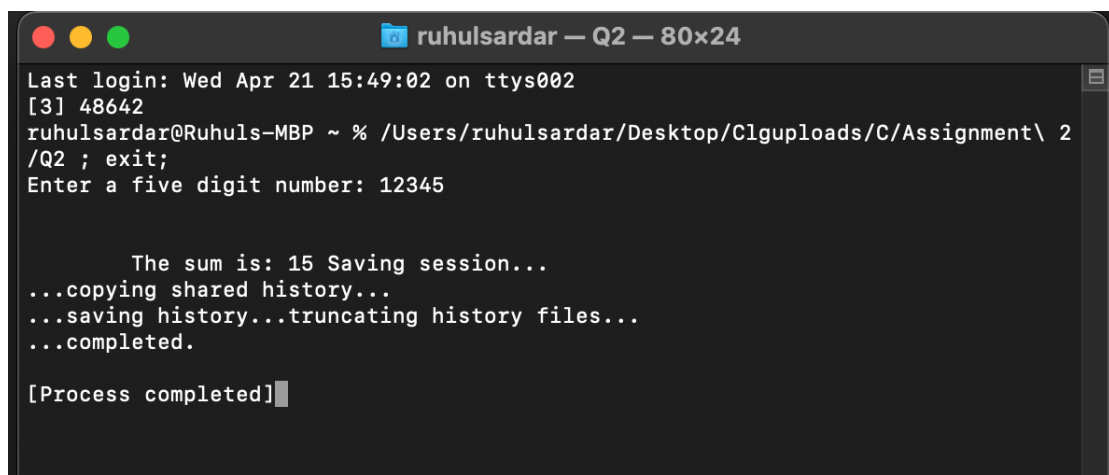
    temp = num % 10;
    sum += temp;
    num = num / 10;

    temp = num % 10;
    sum += temp;

    printf("\n\n\tThe sum is: %d ", sum);

    return 0;
}
```

Output:



```
ruhulsardar — Q2 — 80x24
Last login: Wed Apr 21 15:49:02 on ttys002
[3] 48642
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q2 ; exit;
Enter a five digit number: 12345

        The sum is: 15 Saving session...
...copying shared history...
...saving history...truncating history files...
...completed.

[Process completed]
```

Q3. WACP to find the average of five numbers.

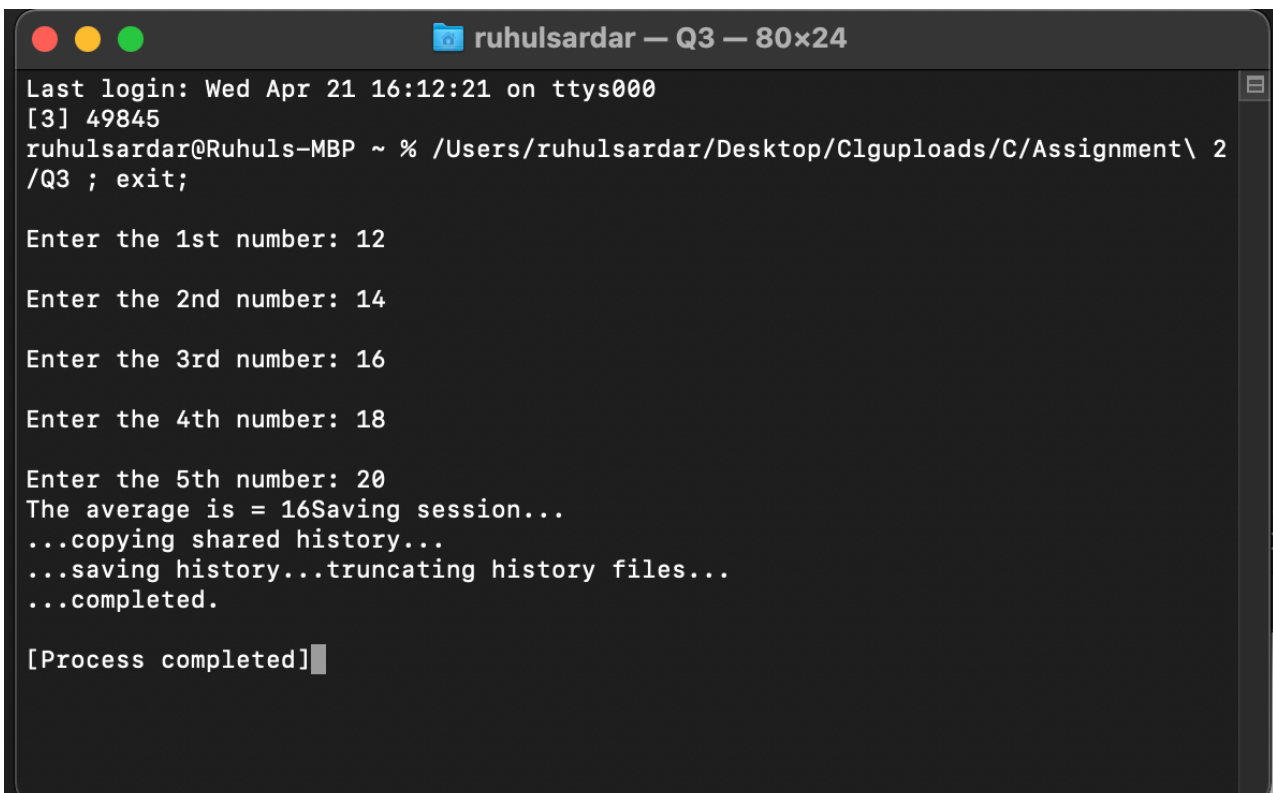
```
#include <stdio.h>

int main(){
    int a, b, c, d, e, avg;
    printf("\nEnter the 1st number: ");
    scanf("%d", &a);
    printf("\nEnter the 2nd number: ");
    scanf("%d", &b);
    printf("\nEnter the 3rd number: ");
    scanf("%d", &c);
    printf("\nEnter the 4th number: ");
    scanf("%d", &d);
    printf("\nEnter the 5th number: ");
    scanf("%d", &e);
    avg = (a + b + c + d + e)/5;

    printf("The average is = %d", avg);

    return 0;
}
```

Output:



```
ruhulsardar — Q3 — 80x24
Last login: Wed Apr 21 16:12:21 on ttys000
[3] 49845
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q3 ; exit;

Enter the 1st number: 12

Enter the 2nd number: 14

Enter the 3rd number: 16

Enter the 4th number: 18

Enter the 5th number: 20
The average is = 16Saving session...
...copying shared history...
...saving history...truncating history files...
...completed.

[Process completed]
```

Q4. WACP to convert temperature in degree F to degree C and vice versa.

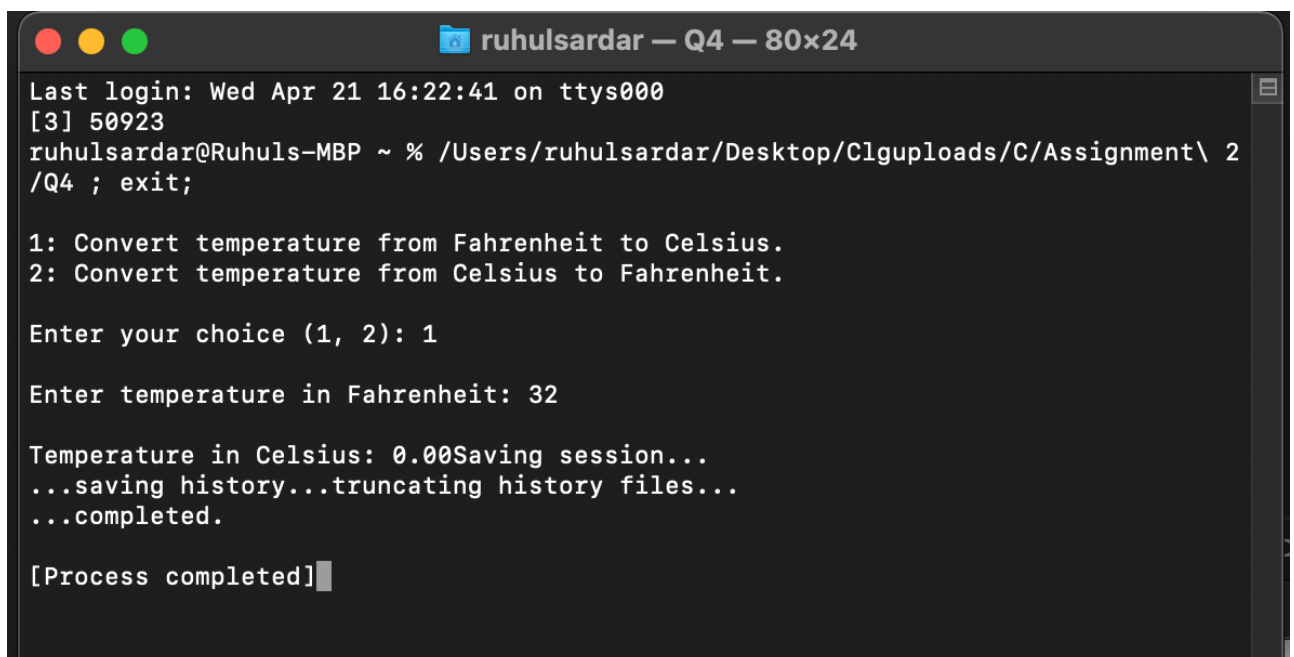
```
#include <stdio.h>

int main()
{
    float fh,cl;
    int choice;

    printf("\n1: Convert temperature from Fahrenheit to Celsius.");
    printf("\n2: Convert temperature from Celsius to Fahrenheit.\n");
    printf("\nEnter your choice (1, 2): ");
    scanf("%d",&choice);

    if(choice ==1){
        printf("\nEnter temperature in Fahrenheit: ");
        scanf("%f",&fh);
        cl= (fh - 32) / 1.8;
        printf("\nTemperature in Celsius: %.2f",cl);
    }
    else if(choice==2){
        printf("\nEnter temperature in Celsius: ");
        scanf("%f",&cl);
        fh= (cl*1.8)+32;
        printf("\nTemperature in Fahrenheit: %.2f",fh);
    }
    else{
        printf("\nInvalid Choice !!!");
    }
    return 0;
}
```

Output:



```
ruhulsardar — Q4 — 80x24
Last login: Wed Apr 21 16:22:41 on ttys000
[3] 50923
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q4 ; exit;

1: Convert temperature from Fahrenheit to Celsius.
2: Convert temperature from Celsius to Fahrenheit.

Enter your choice (1, 2): 1

Enter temperature in Fahrenheit: 32

Temperature in Celsius: 0.00Saving session...
...saving history...truncating history files...
...completed.

[Process completed]
```

Q5. WACP to read in the age of a person as an integer number in years and print the three immediate integral range of the age entered.

```
#include <stdio.h>
```

```
int main(){
```

```
    int age;
```

```
    printf("Enter the age : ");
```

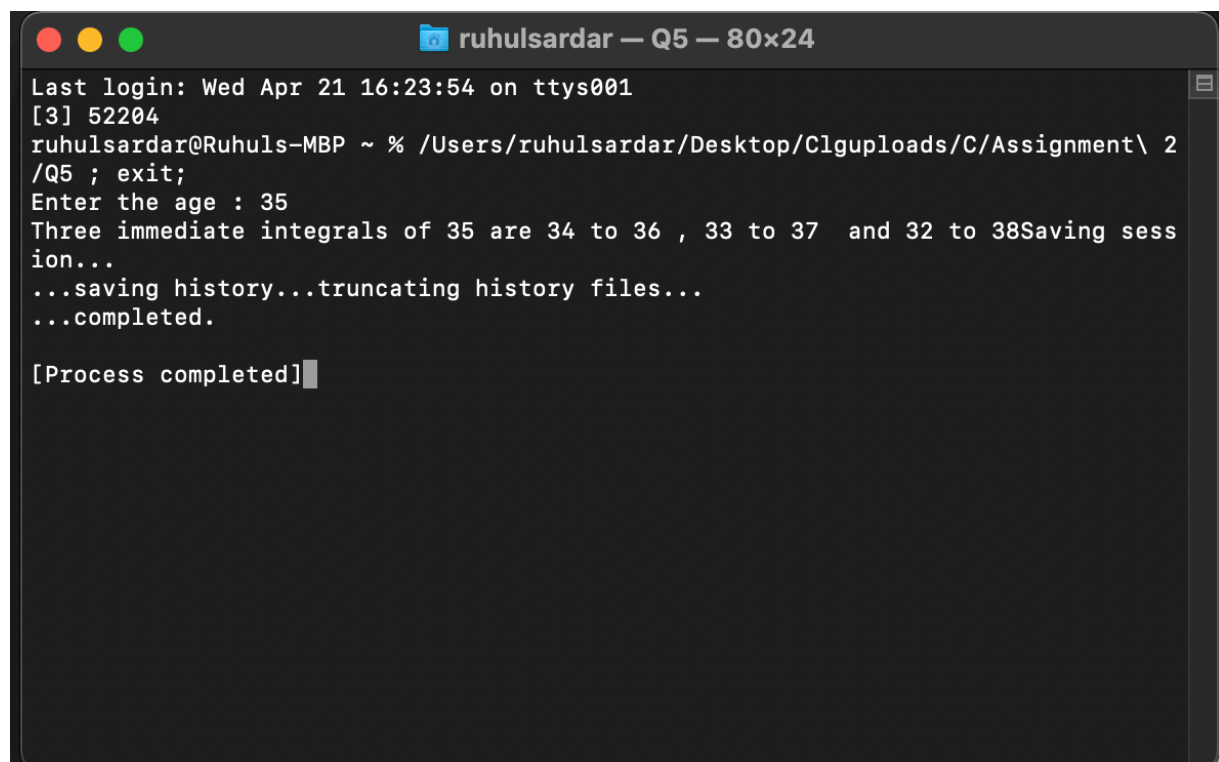
```
    scanf("%d", &age);
```

```
    printf("Three immediate integrals of %d are %d to %d , %d to %d  and %d to %d", age, age-1, age+1, age-2, age+2, age-3, age+3);
```

```
    return 0;
```

```
}
```

Output:

A screenshot of a macOS terminal window titled "ruhulsardar — Q5 — 80x24". The terminal shows the following text: "Last login: Wed Apr 21 16:23:54 on ttys001", "[3] 52204", "ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2 /Q5 ; exit;", "Enter the age : 35", "Three immediate integrals of 35 are 34 to 36 , 33 to 37 and 32 to 38", "Saving session...", "...saving history...truncating history files...", "...completed.", and "[Process completed]". The terminal has a dark background with light gray text and standard macOS window controls at the top.

```
Last login: Wed Apr 21 16:23:54 on ttys001
[3] 52204
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q5 ; exit;
Enter the age : 35
Three immediate integrals of 35 are 34 to 36 , 33 to 37  and 32 to 38
Saving session...
...saving history...truncating history files...
...completed.

[Process completed]
```

Q6. WACP to swap 2 integer numbers using bit wise operators.

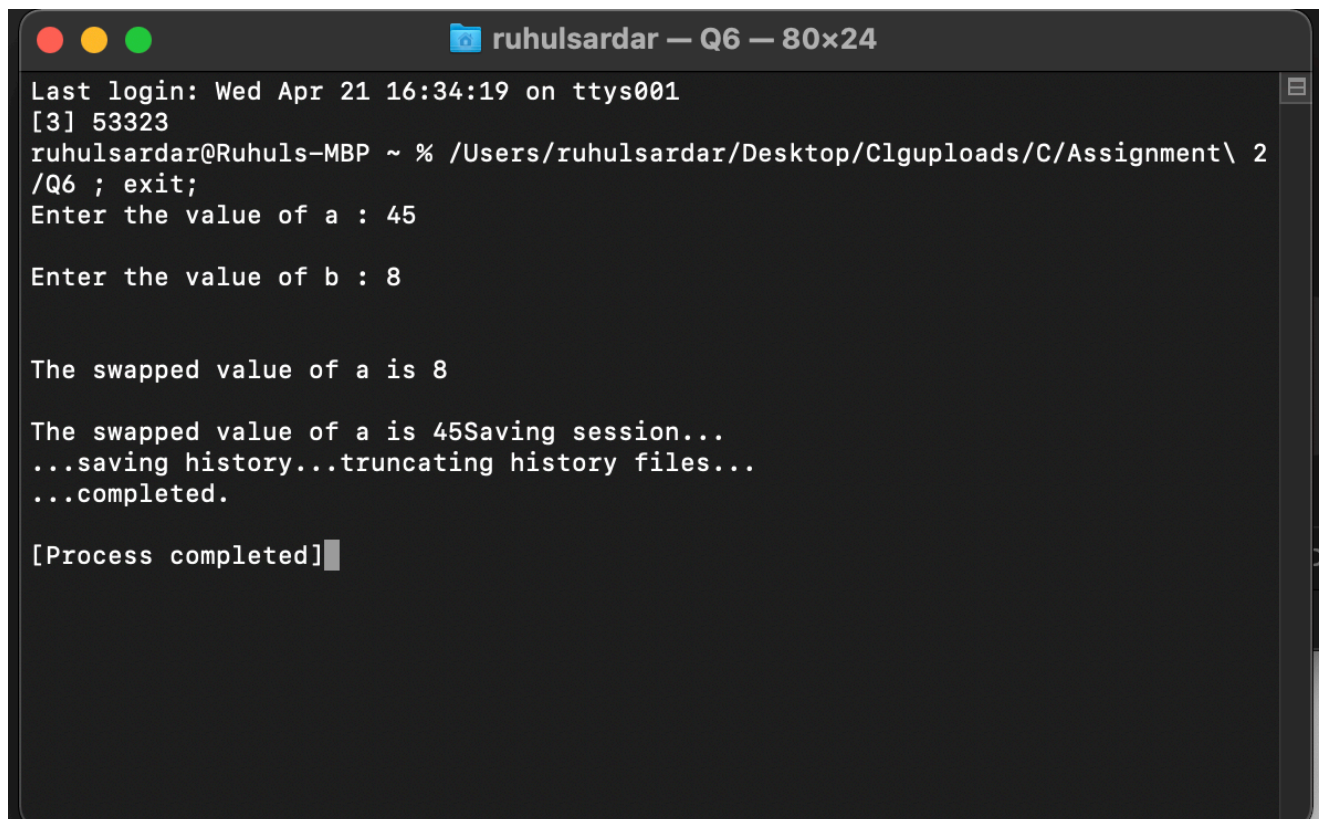
```
#include<stdio.h>

int main(){
    int a, b;
    printf("Enter the value of a : ");
    scanf("%d", &a);
    printf("\nEnter the value of b : ");
    scanf("%d", &b);
    a = a ^ b;
    b = a ^ b;
    a = a ^ b;

    printf("\n\nThe swapped value of a is %d", a);
    printf("\n\nThe swapped value of a is %d", b);

    return 0;
}
```

Output:

A terminal window titled "ruhulsardar — Q6 — 80x24" showing the execution of the C program. The window has a dark background with light-colored text. The output shows the user entering values for 'a' and 'b', followed by the swapped values. The terminal also shows system messages like "Last login: Wed Apr 21 16:34:19 on ttys001" and "Saving session...".

```
ruhulsardar — Q6 — 80x24
Last login: Wed Apr 21 16:34:19 on ttys001
[3] 53323
ruhulsardar@Ruhuls-MBP ~ % /Users/ruhulsardar/Desktop/Clguploads/C/Assignment\ 2
/Q6 ; exit;
Enter the value of a : 45

Enter the value of b : 8

The swapped value of a is 8

The swapped value of a is 45Saving session...
...saving history...truncating history files...
...completed.

[Process completed]
```